

Design and Development of Wireless Charging Station for E-Mobility using Solar Energy

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Abstract: *Electric vehicle (EV) entrance is accelerating in an uncommon way, yet the deficient charging establishment to cover all regions impedes the improvement of the EV market. As of now, due to the little EV to internal combustion engine vehicle extent, presenting fixed charging stations (FCSs) at all areas isn't financially reasonable. Nonappearance of available FCSs assembles the arrive at pressure and by and large time, which are two critical limits to the immense extension gathering of electric vehicles. As a fix, flexible charging stations (MCSs) can expect a basic part in speeding up the technique engaged with pushing toward more EV gathering by giving charging organizations at EV clients' worthwhile times and regions. The survey uncovers that involving MCS organizations is a monetarily keen advancement for charging workplaces owners to additionally foster the utilization speed of charging gear and for the power organization to diminish the opposing effects of EV penetration. In Existing System Batteries channel Quickly. EVs are not so appealing to buyers even with various organization inspiration programs. Government sponsorship and obligation stimuli are one key to extend the part of the general business of EV today. Experts have been managing arranging one kind of flexible robots to deficiently or totally play out the assessment tasks of power transmission lines But, there is at this point an issue which really affects execution of examination robot-the steady working season of robot.*

Keywords: Electric Vehicle; Fast Charging, Mobile Charging Station; Off Grid Charging; Technical Benefit, etc.

I. INTRODUCTION

For road side assistance in order to abolish the Wireless Power transfer technology (WPT) which is used for infuriating is desirable by EV at any time anywhere at roadside, charging the vehicle becomes one of the easy tasks. For the mobile EV charging station system, the vehicle driver just needs to park their car/vehicle and can leave or wait till their car is charged. This makes easy for the battery of EV's with the wireless charging to reduce up to 20% and this is less collated with conductive charging.

In today's world the market demand for movable charging station when compared to normal vehicles is very huge. We wonder the WPT should be although used very successfully because when the WPT is used in EV charging its MHz frequency is very hard to meet the power its skill full criteria. It's basically very difficult when it comes to conversion of a few to few hundred kilowatts power at MHz frequency level using the art power of electronic devices. Moving forward to the air core coils used in the cars, they are too sentient to the surrounding ferromagnetic objects. When this air core coil is full of regard to a car the magnetic flux will be going inside the chassis which will lead to cause high eddy current loss as well as a magnificent change in coil parameters.

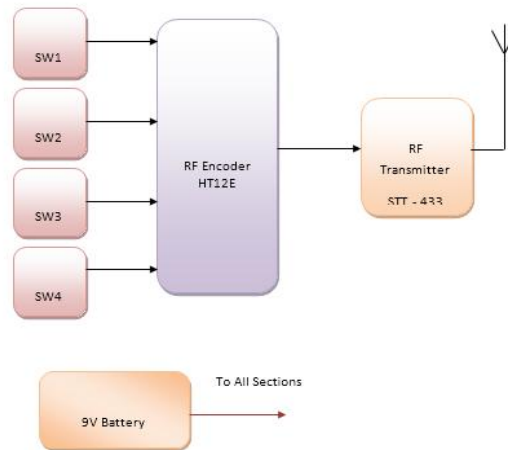
Problem Definition: The shortage of petroleum products, as well as the natural worries, highlights new energy challenges. In general, the conventional vehicle industry assimilates half of the world's oil creation, bringing about enormous outflows. Taken together, these issues affect the car business and are likewise significant for the innovative work of electric vehicle (EV) and their charging stations which assumes an imperative part underway of more EV's. Electric power stockpiling is additionally one of the principal research points nowadays. Mechanical advances in electrical energy stockpiling have finished at an adequate mass thickness of energy and

ability to meet the auto needs. The greatest downside of these stockpiling advancements is their high creation cost. These days, scientists are endeavouring to fabricate a remote charging station for EV's utilizing RENEWABLE energy, which will be a decent stockpiling arrangement and improve their charging methodology and unwavering quality to lessen the general expense of the vehicle. Numerous innovation stockpiling frameworks have been created around here and coordinated into the power train framework, bringing about sure execution.

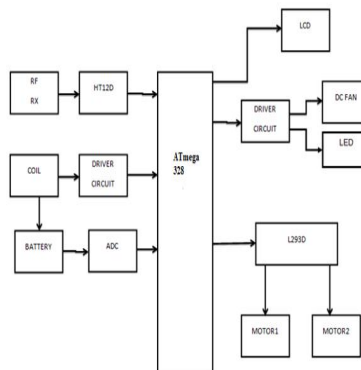
II. METHODOLOGY

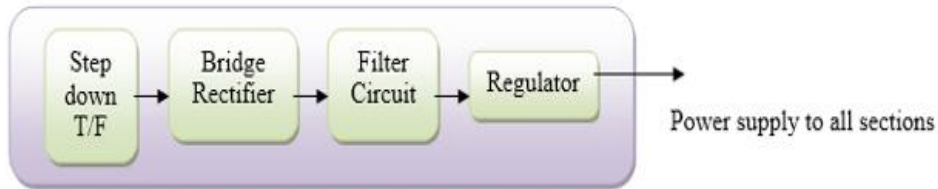
There are four switches switch 1, switch 2, switch 3, switch 4 for vehicles movement i.e., forward, backward, left and right. Rf encoder will encode the signal coming from switches and it will transmit through radio frequency signal. The signal from transmitter will decode in HT12D and then it goes to microcontroller. Magnetic coil is drive through microcontroller and it will charge through battery. 12 v battery is used. ADC reads the battery voltage and send it to microcontroller. Battery voltage will display on LCD. Main controller is ATmega 328 It has 28 pins. LED is for indication purpose. To run both motor's at a time L293D is used.

Block Diagram: Transmitter

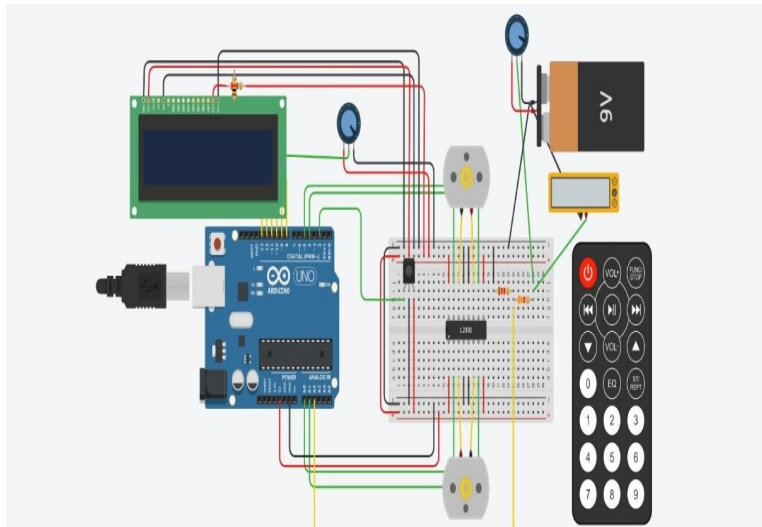


RECEIVER SECTION





I/P from solar Battery charge through solar First step down transformer then bridge rectifier then filter circuit (LC) Now voltage regulates and power will supply to all sections.



Remote is for the development of vehicle. signal communicated through remote is gotten through IR collector and afterward it ships off microcontroller ATmega 328. Vehicle will charge through attractive loop. Voltage source is underneath battery. Voltage can be fluctuate with the assistance of handle. In Arduino ATmega328 is available. L293D in the middle of between two motors. ie. Motor1 and engine2.

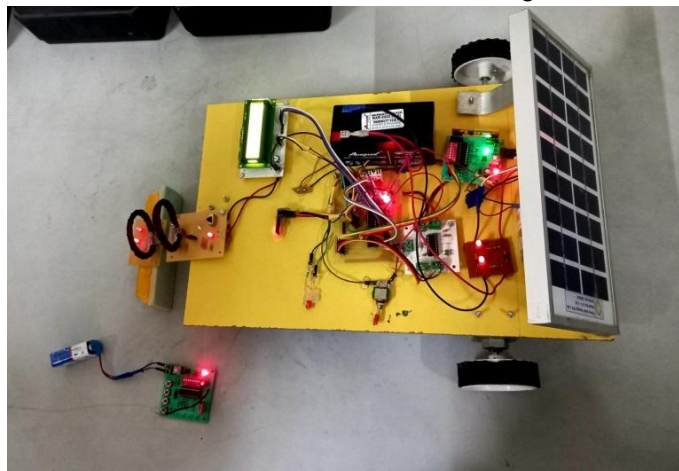


Figure: Implentation

III. RESULTS AND CONCLUSION

Firstly, we tried to find and study the work related to charging of vehicles. We have studied standards for charging of electrical vehicles issued by different standardization bodies and electric vehicle available in the

market. We have studied the advantages of E-mobility's. E-Mobility's take more time to charge in current situation and furthermore framework isn't the imprint's place to supplant E-Mobility's. Accusing station of quick charging capacity and primarily controlled by sustainable power sources will lead individuals to accentuate on purchasing E-Mobility's. It is normal that 500 million electric vehicles will be on the streets by 2030. The innovation and foundation for charging of electrical vehicles will be the key empowering agent for this versatility progress.

The EV charging power must be given by the circulation network for minimal price, with insignificant support and at most extreme unwavering quality. The flow power lattice is for the most part controlled by fossil fuel like coal and gaseous petrol. At the point when EV's are charged from such a matrix, a huge piece of the initials is just moved from the vehicle to the power plant. This makes EV's not really green as one would expect. Hence it is significant for the future that EV's are charged from manageable wellsprings of power like sun based or wind.

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